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| 09/927,906 | 08/09/2001 | Chakki Kavoori | 9824-136-999 | 5185 |

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| EXAMINER |
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TANG, KENNETH

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| ART UNIT | PAPER NUMBER |
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2195

DATE MAILED: 09/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/927,906

Applicant(s)

KAVOORI ET AL.

Examiner

Kenneth Tang

Art Unit

2195

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) 18-25 and 35-40 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 29-31 is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☒ Claim(s) 5, 7, 10, 14, 16, 17, and 34 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. This office action is in response to the Election of the Restriction Requirement filed 5/8/06. Group I (claims 1-17 and 26-34) have been elected without traverse.
2. The text of those sections of Title 35, U.S. code not included in this office action can be found in a prior office action.

Allowable Subject Matter

3. Claims 29-31 are allowed.
4. Claims 5, 7, 10, 14, 16, 17, and 34 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim Rejections - 35 USC § 103

5. **Claims 1-4, 6, 8-9, 11-13, 15 and 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Prestifilippo et al. (USPN 5,446,889) (hereinafter Prestifilippo) in view of Kodosky et al. (USPN 6,608,638) (hereinafter Kodosky).**
6. As per claim 1, Prestifilippo teaches the invention as claimed, including in a device having a processor, a computer readable memory, and at least one hardware resource coupled to each other, a method of operating resources, comprising the steps of:

- a) locating a first address in the computer readable memory of the device, the first address containing operating information associated with a first resource (col. 3 lines 9-10);
 - c) reading a pointer associated with the first address that locates a subsequent address for a subsequent resource (col. 3 lines 11-13); and
 - d) repeating steps a) through c) for a quantity of pointers respectively associated with multiple resources (col. 3 lines 18-20).
7. Kodosky teaches the invention as claimed, wherein the operating information is associated with hardware resources (col. 31 lines 36-42); and
- b) transmitting operating information associated with the addresses to the hardware resources (col. 10 line 60 - col. 11 line 20).
8. It would have been obvious to one of ordinary skill in the art to combine Prestifilippo and Kodosky as Kodosky discusses the organizational structure of a linked list for storing operating information associated with hardware resources at length without discussion of a technique for traversing the list. Such traversal methods are largely well known in the art, but Prestifilippo teaches a method that is especially well suited for combination with Kodosky. Prestifilippo notes that linked lists can be used to store practically any kind of data, and the method of traversing linked lists disclosed by Prestifilippo is especially beneficial in the case of system crashes or hardware failures. In that sense, a well known organizational principle is applied to a programmable hardware system, such that the programmer can control the hardware implementation without fear of corruption of the underlying data structures.

Furthermore, though neither Prestifilippo nor Kodosky specifically address a wireless communication device, to implement a linked list of hardware resources in such a device would be an obvious modification of the combination of Prestifilippo and Kodosky. That is, Kodosky addresses the benefits of storing hardware resources for an electronic device in a linked list data structure. Any programmable electronic device that has resources associated with portions of the implementation could make use of the disclosed data structure, including wireless communication devices. Prestifilippo is presented to demonstrate one of the well-known methods of traversing linked lists. This is an elementary programming technique, readily applicable to any linked list data structure. Hereinafter, a wireless communication device is considered an obvious modification of the combination of Prestifilippo and Kodosky. In addition, Kodosky teaches wherein the method is performed in real time while the wireless communication device is operating (*col. 17, lines 50-56*).

9. As per claim 2, Prestifilippo teaches the invention as claimed, including the wireless communication device recited in claim 1 wherein the method further comprises the step of:

- e) returning to the first pointer when all of the quantity of pointers has been exhausted in a list stored in memory (*col. 9 lines 8-9, wherein circular linked lists are a well-known and obvious implementation of such a data structure, i.e. the "next" pointer of the last element is designed to point to the head element*).

10. As per claim 3, Kodosky teaches the invention as claimed, including the wireless communication device recited in claim 1 wherein the method further comprises the step of:

11. repeating steps a) through c) for each of multiple sets of operating information associated with multiple uses of the hardware resource (col. 43 line 65 - col. 44 line 24; col. 44 lines 50-54).

12. As per claim 4, Kodosky teaches the invention as claimed, including the wireless communication device recited in claim 3 wherein the multiple sets of operating information are utilized within a system cycle (col. 29 line 62 - col. 30 line 5).

13. As per claim 6, Kodosky teaches the invention as claimed, including the wireless communication device recited in claim 1 wherein the information for operating the first hardware resource includes semi-static hardware control parameters (col. 12 lines 33-49; col. 23 lines 25-34).

14. As per claim 8, Kodosky teaches the invention as claimed, including the wireless communication device recited in claim 1 wherein the information for operating the first hardware resource includes dynamic hardware control parameters (col. 12 lines 33-49; col. 23 lines 25-34).

15. As per claim 9, Kodosky teaches the invention as claimed, including the wireless communication device recited in claim 8 wherein the dynamic hardware parameters are controlled by dedicated hardware resources (col. 16 line 66 - col. 17 line 11).

16. As per claims 11-13, Kodosky does not specifically teach the invention as claimed, wherein the hardware resources include at least one tracking finger, at least one searcher

element, at least one downlink transmitter element, and at least one matched filter element. However, Kodosky discusses a system that is particularly suited for controlling automation hardware, but is not limited to such (col. 12 lines 33-49). The method is applicable to a wide variety of implementations, and provides hardware resources associated with a plethora of devices or applications.

17. As per claim 15, Kodosky teaches the invention as claimed, including the wireless communication device recited in claim 1 wherein only the hardware resources in the secondary list that are grouped together for a specific category are enabled via the pointer from the primary list (col. 23 lines 36-56; Fig. 11).

18. As per claim 26, Prestifilippo teaches the invention as claimed, including in an wireless communication device having a processor, a means for performing the method of claim 1 (Fig. 4).

19. As per claim 27, Prestifilippo teaches a method of controlling hardware resources in a wireless communication device having a processor and a memory coupled to each other, the method comprising the steps of:

locating a first memory address in the memory associated with a first hardware resource (col. 3 lines 9-10);

determining a pointer that is associated with the first address that locates another memory address in the memory associated with a hardware resource that can be subsequently utilized (col. 3 lines 11-13).

20. Kodosky teaches the invention as claimed, wherein the operating information is associated with hardware resources (col. 31 lines 36-42); and

b) transmitting control information associated with the first memory address to the first hardware resource to enable utilization of the first hardware resource (col. 10 line 60 - col. 11 line 20).

21. It would have been obvious to one of ordinary skill in the art to combine Prestifilippo and Kodosky as Kodosky discusses the organizational structure of a linked list for storing operating information associated with hardware resources at length without discussion of a technique for traversing the list. Such traversal methods are largely well known in the art, but Prestifilippo teaches a method that is especially well suited for combination with Kodosky. Prestifilippo notes that linked lists can be used to store practically any kind of data, and the method of traversing linked lists disclosed by Prestifilippo is especially beneficial in the case of system crashes or hardware failures. In that sense, a well known organizational principle is applied to a programmable hardware system, such that the programmer can control the hardware implementation without fear of corruption of the underlying data structures.

Furthermore, though neither Prestifilippo nor Kodosky specifically address a wireless communication device, to implement a linked list of hardware resources in such a device would be an obvious modification of the combination of Prestifilippo and Kodosky. That is, Kodosky addresses the benefits of storing hardware resources for an electronic device in a linked list data

structure. Any programmable electronic device that has resources associated with portions of the implementation could make use of the disclosed data structure, including wireless communication devices. Prestifilippo is presented to demonstrate one of the well-known methods of traversing linked lists. This is an elementary programming technique, readily applicable to any linked list data structure. Hereinafter, a wireless communication device is considered an obvious modification of the combination of Prestifilippo and Kodosky.

22. As per claim 28, it is rejected for the same reasons as stated in the rejection of claim 27. In addition, Prestifilippo teaches the structure to support the method of claim 27 (see Fig. 4, etc.).

23. **Claims 32-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Prestifilippo et al. (USPN 5,446,889) (hereinafter Prestifilippo) in view of Kodosky et al. (USPN 6,608,638) (hereinafter Kodosky), and further in view of Chintalapati et al. (hereinafter Chintalapati) (US 2002/0120710 A1).**

24. As per claim 32, Prestifilippo teaches an apparatus for dynamically implementing changes for scheduling hardware resources in a wireless communication device having a memory, the apparatus comprising:

a) means for locating a current address in the memory, the current address containing operating information associated with a current hardware resource (col. 3 lines 9-10);

c) means for reading a pointer associated with the current address, that identifies another address containing operating information for another hardware resource of the device (col. 3 lines 11-13); and

Kodosky teaches the invention as claimed, wherein the operating information is associated with hardware resources (col. 31 lines 36-42); and

b) transmitting operating information associated with the addresses to the hardware resources (col. 10 line 60 - col. 11 line 20).

25. It would have been obvious to one of ordinary skill in the art to combine Prestifilippo and Kodosky as Kodosky discusses the organizational structure of a linked list for storing operating information associated with hardware resources at length without discussion of a technique for traversing the list. Such traversal methods are largely well known in the art, but Prestifilippo teaches a method that is especially well suited for combination with Kodosky. Prestifilippo notes that linked lists can be used to store practically any kind of data, and the method of traversing linked lists disclosed by Prestifilippo is especially beneficial in the case of system crashes or hardware failures. In that sense, a well known organizational principle is applied to a programmable hardware system, such that the programmer can control the hardware implementation without fear of corruption of the underlying data structures.

Furthermore, though neither Prestifilippo nor Kodosky specifically address a wireless communication device, to implement a linked list of hardware resources in such a device would be an obvious modification of the combination of Prestifilippo and Kodosky. That is, Kodosky addresses the benefits of storing hardware resources for an electronic device in a linked list data structure. Any programmable electronic device that has resources associated with portions of the

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implementation could make use of the disclosed data structure, including wireless communication devices. Prestifilippo is presented to demonstrate one of the well-known methods of traversing linked lists. This is an elementary programming technique, readily applicable to any linked list data structure. Hereinafter, a wireless communication device is considered an obvious modification of the combination of Prestifilippo and Kodosky.

Prestifilippo nor Kodosky teach d) means for determining whether the current hardware resource is reused within a system cycle; wherein if the current hardware resource is reused within a system cycle, further comprising: e) means for saving the current hardware resource information from a current use. However, Chintalapati teaches accessing memory that when reused, there is a saving of processing resources. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the saving of resource information when the resource is reused to the memory system of Prestifilippo and Kodosky because it would improve system performance, as stated in Chintalapati ([0053]).

26. As per claim 33, it is rejected for the same reasons as stated in the rejection of claim 32. In addition, it was shown if hardware resources are reused, it makes the system efficient. Vice versa, if the hardware resource is not being reused, it is not being efficient. It would be obvious to one of ordinary skill in the art at the time the invention was made to terminate an operation when the hardware resource is not reused within a system cycle in order to maintain its efficiency.

Response to Arguments

27. Applicants' arguments filed June 13, 2005 have been fully considered but they are moot in view of the new grounds of rejections.

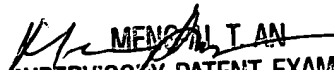
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth Tang whose telephone number is (571) 272-3772. The examiner can normally be reached on 8:30AM - 6:00PM, Every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kt
8/18/06


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